

AMENDMENTS TO THE CLAIMS:

1-4. (Cancelled)

5. (Currently Amended) A signal distribution network ~~for transmitting modulated signals using coaxial cable building wiring containing a plurality of branches as a communication channel~~ comprising:

a ~~network interface device~~ filter located at the point of entry of ~~the a building wiring that reflects~~ tuned to reflect network signals originating in the building ~~wiring~~ back into ~~all branches of the building wiring wherein the reflection introduced by the network interface device produces a multipath signal in the wiring branches that creates impairments to the performance of the communication channel;~~

at least one signal splitter, the signal splitter having a common port and a plurality of tap ports, the common port of the signal splitter being coupled to the filter; and

a plurality of terminal devices, ~~wherein the signal modulation used by the terminal devices is orthogonal frequency division multiplexing to overcome the communication channel impairments caused by the network interface device~~ each terminal device being coupled to a tap port of at least one signal splitter, at least one of the terminal devices providing frequency bins with more transmit bits which occupy parts of the channel where the signal to noise ratio (SNR) is high;

wherein the ~~network interface device provides~~ reflections from the filter provide a path for terminal devices back through the tap port of the signal splitter and out each other tap port to transmit signals to and receive from other terminal devices and wherein thus allowing terminal devices to communicate directly with each other to form the signal distribution network.

6-17 (Cancelled)

18. (Currently Amended) The signal distribution network of claim 5, ~~further comprising a method of sharing wherein at least one of the communication channel channels~~ between terminal devices ~~using~~ uses time division duplex protocol for communications and the communications that are synchronized by broadcasting a beacon message on the network.

19-22. (Cancelled)

23. (Currently Amended) The signal distribution network of claim ~~5~~ 18<sub>1</sub>, wherein the signal modulation used by the terminal devices is orthogonal frequency division multiplexing (OFDM) and the modulation order of each OFDM carrier is adjusted according to the signal to noise ratio (SNR) at each OFDM carrier frequency to overcome frequency selective channel impairments present in the coaxial building wiring caused by the reflections from the network interface device filter.

24. (Currently Amended) The signal distribution network of claim 18<sub>1</sub>, wherein the power level of each OFDM carrier is adjusted according to the signal loss at each OFDM carrier frequency to overcome frequency selective channel impairments ~~present in the coaxial building wiring~~ caused by the reflections from the ~~network interface device~~ filter.

25. (Currently Amended) A broadband local area network ~~to enable terminal devices to transmit messages to and receive messages from other terminal devices~~ using coaxial cable building wiring as a communication channel ~~comprising a point of entry and a plurality of branches connected to terminal devices~~, the network comprising:

~~a network interface device connected to the point of entry of the building wiring comprising:~~

~~a first port connected to the point of entry side of a branch of the building wiring;~~

~~a second port connected to the terminal device side of a branch of the building wiring;~~  
~~and~~

~~a frequency selective signal at the second port is reflected out the port and back a reflected signal path is created that produces a multipath signal in the wiring branches that creates impairments to the performance of the communication channel;~~

~~a plurality of terminal devices connected to the wiring branches, each terminal device bidirectionally communicating with other terminal devices through the reflected signal path created by the network interface device~~ using orthogonal frequency division multiplexing (OFDM) modulation, at least one of the terminal devices

providing frequency bins with more transmit bits which occupy parts of the channel where the signal to noise ratio (SNR) is high to overcome the communication channel impairments caused by the network interface device.;

a network of building cables coupled to the plurality of terminal devices; and

a filter having a first and second port, the first port connected to a building point of entry and the second port connected to the plurality of terminal devices via the network of building cables, wherein signals transmitted by any of the terminal devices and received at the second port of the filter are reflected back into the network of building cables in order to create a communication path between the transmitting terminal device and at least one other terminal device coupled to the network of building cables.

26. (Currently Amended) The broadband local area network of claim 25 wherein the modulation order of each OFDM carrier is adjusted according to the signal to noise ratio (SNR) at each OFDM carrier frequency to overcome frequency selective channel impairments present in the coaxial building wiring caused by the reflections from the ~~network interface device~~ filter.

27. (Currently Amended) The broadband local area network of claim 25, wherein the power level of each OFDM carrier is adjusted according to the signal loss at each OFDM carrier frequency to overcome frequency selective channel impairments present in the coaxial building wiring caused by the reflections from the ~~network interface device~~ filter.

28. (Previously Amended) The broadband local area network of claim 25 wherein the frequency used for communicating is above the cable television band.

29. (Currently Amended) A broadband local area network for transmitting modulated signals using coaxial cable building wiring containing a plurality of branches comprising:

a ~~network interface device~~ filter located at the point of entry of the building wiring that reflects network signals originating in the building wiring back into all branches of the building wiring wherein the network interface device is frequency dependent and reflects signals by reflecting a predetermined frequency band of

~~signals, wherein the reflected signals produce a multipath signal in the wiring branches that creates impairments to the performance of the communication channel;~~

at least one signal splitter;

a plurality of terminal devices connected to the wiring branches, each terminal device capable of ~~bidirectionally~~ communicating with other terminal devices ~~through~~ using the reflected signal path created by the ~~network interface device filter~~, wherein the terminal devices perform equalization on the received signal that restores a flat frequency response to overcome ~~the~~ communication channel impairments caused by the reflected signals ~~multipath signals~~.

30. (Previously Amended) The network of claim 29 wherein the equalization is frequency domain equalization.

31. (Previously Amended) The network of claim 29 wherein the equalization is time domain equalization.

32. (Previously Amended) The network of claim 29 wherein the equalization is adaptive.

33. (Previously Amended) The network of claim 29 wherein the terminal devices use orthogonal frequency division multiplexing (OFDM) modulation to overcome the communication channel impairments caused by the reflected signals.

34. (Previously Amended) The network of claim 32 wherein the terminal devices use orthogonal frequency division multiplexing (OFDM) modulation to overcome the communication channel impairments caused by the reflected signals.

35. (Previously Presented) The network of claim 34 wherein the terminal devices use forward error correction to recover the transmitted signals without errors.

36. (Currently Amended) The broadband local area network of claim 25, ~~further comprising a method of sharing~~ wherein at least one of the communication channel channels

between terminal devices ~~using~~ uses time division duplex protocol for communications and  
the communications ~~that~~ are synchronized by broadcasting a beacon message on the network.

37. (Currently Amended) The broadband local area network of claim 29, ~~further~~  
~~comprising a method of sharing~~ wherein at least one of the communication ~~channel~~ channels  
between terminal devices ~~using~~ uses time division duplex protocol for communications and  
the communications ~~that~~ are synchronized by broadcasting a beacon message on the network.